

ABSTRACT

A field effect transistor having a high field effect mobility is provided which can be obtained by 5 a simple method. The field effect transistor includes an organic semiconductor layer composed of a crystallized film of a naphthoporphyrin compound represented by formula (2), which is obtained by the conversion by heating of the coating film of a 10 porphyrin compound represented by formula (1), the organic semiconductor layer having crystal grains with a maximum diameter of 1 μm or more, wherein R_1 and R_2 each independently denote at least one selected from the group consisting of hydrogen, 15 halogen, hydroxyl, and alkyl having 1 to 12 carbon atoms; R_3 denotes at least one selected from the group consisting of a hydrogen atom and an aryl group; and M denotes two hydrogen atoms, a metal atom or a metal oxide.